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Laparoscopic sleeve gastrectomy for a two-and a half year old morbidly obese child – A leap into the unknown

This issue's report by Al Mohaidly and colleagues on performing a sleeve gastrectomy in a two year old child¹ raises substantial controversy. While most authorities on the topic are still struggling to define the most appropriate age limit for bariatric and metabolic procedures in the adolescent age range,² the authors have taken the discussion to the next level, by performing a sleeve gastrectomy in a toddler diagnosed as morbidly obese.

The subject of infant and toddler obesity has been investigated only recently. So far, it is established that overweight infants have a high risk of becoming obese preschool children.³ Also, the prevalence of obesity in that age range seems to be influenced by a variety of psychosocial, behavioral, and genetic factors.^{4–6} As the authors point out, some extremely obese toddlers may experience certain co-morbidities,⁷ even at this young age. However, in the referenced study, infants in the 85th to 94th percentile for weight actually had *less* frequent hospital admissions, as well as *lower* rates of asthma, bronchiolitis, and otitis media than their normal weight counterparts.⁷ The effect of obesity on other comorbidities in this age range is unknown.

Although the authors report significant weight loss of 27% over 2 years following surgery and normalization of body mass index (from 41 to 24), it is still unclear whether this will translate into a risk reduction for obesity later in life. There are many other unknowns in the equation: Will bariatric surgery at two years of age compromise nutrition during childhood development? Will the weight loss be sustained in the long-term? Is there increased risk for gastroesophageal reflux? Does the stomach restretch while the child grows? What is the psychological impact on the child and the family?

In essence, obesity is the result of an imbalance between caloric intake and expenditure. Toddlers do not have control over their dietary intake as do older children or adolescents. They eat what their caregivers offer them. Therefore, the first intervention should be to counsel the parents or guardians on child-appropriate nutrition and make sure that these recommendations are followed. One could argue that overfeeding a child by the parents to the point of becoming morbidly obese is a form of neglect or maltreatment, and that the help of child protective services may be justified before considering surgical options in such cases. The parents should have kept a food chart, so others could calculate caloric intake even if they could not. Surgery should be considered the last resort and performed with extreme caution. The surgical team have a duty to follow-up the child in the long term as part of a larger multidisciplinary team including a pediatrician, dietician, nutritionist and

endocrinologist with close involvement of the family physician, the health visitor as well as the pre-school/school nurse. Access to a child psychologist should also be available if needed. We note that this case report has already hit the media and the child's confidentiality will need to be protected. We also hope that bullying at school or elsewhere will not occur but if it does the child is supported appropriately and their self-esteem and sense of self is not negatively impacted. Future genetic testing may ultimately reveal the etiology underlying the rapidity of weight gain at such an early age.

Almost a decade ago, indications were established for pediatric bariatric surgery⁸ and have since been adopted by many societies around the world. These include having failed an intensive conservative weight-loss program of ≥ 6 month duration, a body mass index ≥ 40 , having attained a majority of skeletal maturity, and having demonstrated the ability to maintain good compliance with all medical recommendations. Many of these criteria are obviously not applicable in infants and toddlers.

Without long-term follow up on the true benefits of this operation, it is too early to draw universal conclusions from this case report, or make any further recommendations. Larger studies would be needed but these may encounter difficulties in obtaining ethical approval. All surgeons need to have a sound ethical basis for their decision making. At a basic level the prima facie principles of medical ethics guide us – autonomy, non-maleficence, beneficence and justice. Autonomy is really the parental autonomy to make a decision on behalf of their child for an operation that is irreversible and which the child may not agree with at an older age. Non-maleficence and the core value of prima non-nocere as well as beneficence were not guaranteed as no data existed on whether the procedure would benefit a two and a half year old. Justice and the equitable use of resources may not be such a huge factor if waiting lists to see the surgical team are low and the healthcare system is funded privately rather than publicly and so resource issues play less of a role. The authors have clearly made footprints on so far uncharted territory and made a leap into the unknown. From what is known in the biomedical literature so far, the ground they were walking on is quite soft. One would hope that early social, nutritional, and behavioral interventions would continue to make such operations at this young age rare in the future.

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